DOCUMENT RESUME

ED 188 073 CG 014 470

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TITLE The Emotional Impact of Pain on Children.
PUB DATE 80
NOTE 8p.; Paper presented at the Annual Convention of the Southwestern Psychological Association (26th, Oklahoma City, OK, April 10-12, 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Childhood Attitudes; Children; Cognitive Processes; *Coping; *Emotional Response; Expectation; *Hospitalized Children; *Locus of Control; Personality Assessment; Pilot Projects; Research Projects; *Self Esteem; Self Evaluation (Individuals)
IDENTIFIERS *Pain

ABSTRACT

The inability of some children to cope with the pain from severe burns may result in depressive withdrawal or death. An understanding of the emotional impact of pain on children is essential to improve their ability to cope. A pilot project with seriously burned children employed three dependent measures to identify children who cope adaptively with pain, including: (1) audiotaping of treatments and physical therapist judgments of the child's cooperativeness during debridement and hydrotherapy; (2) the child's rating of pain intensity during treatment; and (3) the child's pulse during treatment. Coping strategies were determined through a battery of psychological tests and structured interviews. Although definitive conclusions are not possible at this stage of the research, several trends are evident. Good copers are characterized by positive self-statements and seem better informed about pain. Poor copers have some effective means of dealing with pain and tend to respond well to cognitive behavioral treatments used on an individual basis. (Author/NRB)

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THE EMOTIONAL IMPACT OF PAIN ON CHILDREN

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CG 014470

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NATIONAL INSTITUTE OF EDUCATION

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The emotional impact of pain on children has been largely overlooked in the literature and most previous investigations have been merely descriptive in nature. Psychologists, as scientists of human behavior and experience, have just begun to come to an understanding of this phenomenon and to search out methods which will ameliorate the intense emotional suffering that thousands of children each year experience in response to pain.

The present research, conducted on a children's burn center, involves both the measurement of constructs and of hypothesized cognitive processes associated with the constructs with regard to pain control. Data is being gathered on two types of measures: 1) behavioral observations, self-ratings and physiological recrodings are being taken in an effort to empirically identify children who cope adaptively, and 2) paper and pencil personality tests, an intelligence test, an attitude survey, and interview techniques, such a pain perception projectives, are being administered in order to determine what strategies children use to manage their pain.

While the formal stage of this research has only recently begun and, consequently, there is little data to report at this time, upon its completion a controlled evaluation will be carried out of a multidimensional treatment program designed for the enhancement of coping behaviors.

There has been a great deal of research on adult pain, and psychologists have made considerable progress in understanding this phenomenon. There are a variety of theories regarding the pain mechanisms; however, the specifics of these mechanisms are as yet unresolved.

It is clear from the literature that pain involves more than simple sensory input. Cognitive and affective factors, such as a person's focus of attention, perception of control, expectancies and reinforcement history have been shown to make a substantial contribution to the perception and reaction to pain (Turk, 1978). Given the apparent significance of these factors, a number of attempts have been initiated to study the feasibility of utilizing such variables to enhance people's ability to cope with pain. Some of the most promising strategies are refelcted in the writings of Meichenbaum (1977) and Turk (1978) with respect to a multidimensional cognitive-behavioral treatment program for management of pain. Initial studies utilizing this approach have found encouraging results demonstrating substantially improved responses to pain in both clinical and laboratory settings. For example, Turk (1977) used a stress-innoculation training procedure with laboratory induced pain. Subjects were given 3½ hours of skills training in the use of relaxation, imagery rehearsal, and attentional focusing, as well as exposure to a novel stimulus. The training was found to increase subject's pain tolerance, and to generalize to the novel stimulus of a cold pressor test, a task which involves immersing the hand in ice water. In a non-controlled clinical study by Sachs (1976) a multidimensional cognitive-behavioral treatment program was used with eight chronic pain patients. The components included were relaxation and attention focusing, self-monitoring, and cognitive skills training. Sachs reported that on a four month-followup, patients indicated significant reductions in pain intensity and its life-disrupting effects, and in percentage of self-administered medications.

Although much is currently being learned about coping and pain, most of this research has focused on experimentally induced pain with college students. In addition, a few studies have been conducted utilizing adults experience of clinical pain. Scant attention in the research literature has been devoted to the investigation of childhood pain and improving children's coping with pain. In fact, our literature search revealed only two controlled studies on children's coping with pain. In an unpublished doctoral dissertation by Peterson (1978), relaxation, distractive imagery, and comforting self-talk were used with children about to undergo tonsillectomies. Results indicated the experimental treatment reduced pain according to behavioral/physiological measures. Another controlled study by Wakeman (1978) with burned children and adults, found hypnosis to be an effective treatment for both groups, with significantly greater effects for children than adults. Virtually all other research on children's coping with pain has been observational in nature.

The importance of identifying specific coping mechanisms is highlighted by Seligman's (1974) observation that some children cope so poorly with burn pain that depressive withdrawal and sometimes death unnecessarily results. Unfortunately, the need to cope with these kinds of intense, prolonged pains is not uncommon in childhood. Many medical procedures used with children involve severe pain which must be induced numerous times over the course of their illness. Examples of these procedures include lumbar punctures for cancer treatment, and the debridement of burn injuries, involving scraping away of dead skin. The observed intensity of the pain induced by such procedures is especially striking when one realizes that there are no completely adequate medical treatments for these forms of pain.

Our research in the area of children's responses to pain follows suggestions by Miechenbaum and his colleagues (1977), in that basic research involving both the measurement of constructs and of hypothesized cognitive processes associated with the constructs need to be conducted before outcome research studies can be initiated. The present study was designed to provide this type of information with regard to pain control.

Implementation of the present research has recently begun and consequently we have only pilot data to report at this time. This research is basically an attempt to make a detailed analysis of what constitutes both good and ineffective coping by children. It is hoped that this analysis will reveal basic coping strategies that can be utilized in a later stage of our research that will involve active attempts by the investigators to improve children's responses to pain. The present research deals with pain associated with the treatment of serious burn injuries on the burn center at Oklahoma Children's Memorial Hospital. Our goals at this time are to find the answers to two important questions: the first is "How can we empirically identify the child who copes adaptively?" and the second is "What strategies do these children use?".

With respect to the first question, as is illustrated in the handout, the data we are taking consists of three types of dependent measures. The first involves the child's pain and cooperation in response to debridement and to hydrotherapy, another medical treatment for burns consisting of the child's immersion in a whirlpool bath. Immediately after these treatments, judgements of cooperation and pain will be made by physical therapists on a yes/no basis for presence or absence of kicking, screaming, cooperation, positive self-statements, etc. Audiotaping will also be carried out during the child's hydrotherapy. These tapes will be rated for the degree to which the child's verbalizations reflect pain.

The second measure involves a rating by the child of the intensity of pain experienced during the entire treatment process. For this purpose, a pain thermometer, which is a graphic representation of a thermometer with eight colors representing eight intensities of pain, is explained to the child, who is then asked to point to the color representing the most severe pain felt during the treatment. The third measure, the children's pulse, will be taken at two different times during the treatment procedure. After collection, the data for

these three dependent measures will be combined and summarized in order to differentiate those children who cope successfully or unsuccessfully.

In an attempt to answer the second question of this research, "What strategies do these children use to cope with pain?", a full battery of tests was designed and is currently being administered to each child during the first five days of admission to the hospital.

The Children's Depression Inventory is administered every five days in order to assess the affective responses of the children throughout their experience on the burn unit. The Peabody Picture Vocabulary Test is given primarily to determine each child's ability to understand and respond to the other tests administered. The California Test of Personality and the Pierce-Harris Self-concept Test are also being administered. Both the California Test of Personality and the Pierce-Harris are essentially trait type instruments. Based on previous research, we don't feel that such global personality measures will be as useful in predicting the children's coping as the assessment of more specific, coping strategies. Data needs to be collected, however, to shed light on these suspicions. The Nowicki-Strickland Children's Locus of Control Scale is administered to determine whether or not the child's perceived ability to influence his environment has any relationship to degree of pain regulation. This measure was selected because of research with adult subjects demonstrating an increased tolerance for pain when a person perceives himself to have some control over the pain inducing stiluli (Weisenberg, 1977).

The next dependent measure, the Children's Health Locus of Control Scale (Parcel, 1977) consists of 20 T/F items, such as "I can do things to keep from getting sick." or "People who never get sick are just plain lucky." This instrument is aimed at assessing a more specific and perhaps more relevant dimension of the locus of control variable than other locus of control tests, i.e. the perceived ability to influence one's general health.

The Pain Attitude Scale was designed by the present experimentors to look at three dimensions of the child's general attitude about pain. The first dimension examines the accuracy of information each child possesses about pain and contains items such as "Real bad pain doesn't mean I'm getting worse." The second dimension examines the cognitive style of catastrophyzing, i.e. does the child perceive pain in an extreme manner, and contains items such as "I would rather die than feel pain." The third dimension looks at locus of control once again, this time even more specifically in regard to pain, and contains such items as "I can learn to handle pain if I work at it."

A set of pain perception projectives are also administered. They were developed by the present researchers in order to reveal any specific cognitions that may contribute to the coping process. These projectives consist of four photographs of children undergoing painful treatments such as dental treatment. The traditional thematic apperception method is used, plus further questions asking what the subject in the photo is thinking and feeling. In addition, a procedure known as video-tape reconstruction is being utilized. Each child is videotaped during a painful treatment procedure and later the same day views his videofilm while being questioned about his thoughts and feelings during the treatment. Finally, each child is given a structured interview designed to obtain information about thoughts, beliefs, feelings, and expectations related to the burn accident

hospitalization and treatment, the families reactions, and the peers reactions when the child returns to school.

The battery just described allows us to assess a broad range of variables in order to predict the degree of the children's coping efficacy. In addition to traditional personality assessment, the above mentioned procedures enable us to assess the role of the following in managing pain: 1)Locus of control with three different levels of specificity, 2) Beliefs or information about pain, 3) cognitive style in the form of catastrophyzing, and finally, 4)Specific cognitions or self-statements assessed in several different ways. Unquestionably, each of these assessment procedures have their shortcomings. Taken as a whole, however, it is hoped, as Meichenbaum (1977) suggests, that convergence will result from this type of multidimensional assessment and will therefore allow us to specify and utilize a broad based treatment regime.

Although at this stage of our research, definitive conclusions are impossible to reach, we have noted several interesting trends from our pilot work. For example, good copers appear to be characterized not by the absence of negative self-statements, but rather by the presence of positive self-statements that they use toccounter the negative ones. This finding is consistent with some preliminary research conducted in the area of assertiveness training and anxiety. Additionally, good copers don't seem to possess as much misinformation as poor copers about pain. For example, some poor copers on the burn unit have been noted to make comments such as "Don't kill me." Others believe pain itself is harming their bodies or means they are getting worse.

We have also observed that most poor copers seem to have at least some effective means of dealing with pain in their behavioral repertoire, but don't make use of these strategies unless they are being coached to do so at the time of their painful experience. This observation highlights the importance of the locus of control dimension. With respect to cognitive style, it appears that both types of copers use catastrophyzing to some degree; however, the quality of such statements by the poor copers is much more extreme.

Of interest regarding the effect of medical personnel on each child's ability to cope, the nursing staff apparantly views the poor coper as less motivated to control his pain expression, and consequently blames the child for this deficit. It is our opinion at this time that this blaming exacerbates the child's difficulty in successfully handling the situation.

Overall, our preliminary work also indicates that poor copers respond well to the cognitive behavioral treatment we have employed on a case study basis. Our present research program, therefore, calls for continued data collection concerning coping responses, to be followed by the controlled evaluation of a multidimensional treatment program designed for the enhancement of such coping behaviors.

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